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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,774	09/24/2003	Suk Hwan Lim	200310381-1	4374

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HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER
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HUNG, YUBIN

ART UNIT	PAPER NUMBER
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2624

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/669,774	LIM ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2624	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 15, 17 and 20 is/are rejected.
- 7) ☒ Claim(s) 10-14, 16, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/24/03 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____                                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____   | 6) <input type="checkbox"/> Other: ____                           |

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the following informalities:
  - P. 9, line 30: " $\sigma_R$ ,  $\sigma_G$  and  $\sigma_B$ " should have been " $\sigma_R$ ,  $\sigma_G$  and  $\sigma_B$ "
2. Claims 4, 9, 14, 16 and 19 are objected to because of the following informalities:
  - Claim 4, lines 4 and 6: per line 3 of claim 1 "group" should have been "block"
  - Claim 9, line 4: For consistency and clarity consider changing "smaller pixel areas" to "smaller pixels groups" since all subsequent references use the term "group" (e.g., see lines 8 and 10 of claim 9 and the last three lines of claim 10)
  - Claim 14, lines 6-9: " $\sigma_R$ ,  $\sigma_G$  and  $\sigma_B$ " should have been " $\sigma_R$ ,  $\sigma_G$  and  $\sigma_B$ "; **this also applies to claim 19**
  - Claim 16 is objected to because it fails to further limit its parent claim 11

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-8, 15, 17 and 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 1 recites the limitation "said color conversion matrix" in line 12. Since two instances of color conversion matrices are recited before line 12 (see lines 8 and 10 of this claim), an ambiguity arises and the mete and bound of the claim cannot be ascertained. Claims 2-8 inherit this problem and are similarly rejected. [Recommend referring the color conversion of line 8 as "first" color conversion and replacing "said color conversion" of line 12 with "the first color conversion".]

6. Claim 3 recites the limitation "the fixed pattern noise ... readout noise" in lines 3-4; there is insufficient antecedent basis for this limitation in the claim. In addition, claim 3 further recites "said fixed ... noise for each RGB channel" in lines 5-6; again there is insufficient antecedent basis (that the noises are channel noises).

7. Claims 6 and 7 both recite the limitation "said pixels" in their respective line 2; there is insufficient antecedent basis for this limitation in each of the claim.

8. Claims 15 and 20 both recite the limitation "the color-converted spaces" in lines 4-5 and line 4, respectively; there is insufficient antecedent basis for this limitation in each of the claim.

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9. Claim 17 recites the limitations "four pixel values ... and white" in lines 2-3.

Since its parent claim 11 stipulates that each pixel has three pixel values (R, G and B), ambiguity arises as to what colors each pixel should have. Therefore the metes and bounds of the claim cannot be ascertained.

10. [Note: If claim 17 should be interpreted in such a way that the RGB color values for each pixel in the parent claim (claim 11) are simply replaced with the four colors as recited in claim 17, then Applicant is advised that should claim 12 be found allowable, claim 17 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).]

### ***Double Patenting***

11. Applicant is advised that should claims 13 and 14 be found allowable, claims 18 and 19 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof [this is because claim 18 is a duplicate of claim 13; and given that claim 16 fails to further limit its parent claim 11, claim 19, which depends from claim 16 (which in essence is claim 11), is a duplicate of claim 14]. When two claims in an application are

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duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

13. Claim 9 is rejected under 35 U.S.C. 102(e) as being anticipated by Kawano (US 6,897,983).

Regarding claim 9, Kawano discloses

- Dividing the picture area of said color picture image into a plurality of smaller pixel areas, each pixel having a plurality of pixel values each corresponding to a different color channel [Fig. 2, ref. 25; Col. 15, lines 20-25. Note that the image is separated (i.e., divided) into smaller areas; further note that each pixel has R, G and B colors (Col. 15, lines 12-15)]
- processing said pixel values for each respective pixel in each respective pixel group, using a first color conversion matrix, said first color conversion matrix being based on said pixel values in each respective pixel group

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[Fig. 2, refs. 26 & 27 (filtering according to separation result); Col. 15, lines 43-46. Note that the spatial filtering is used to change the colors of the pixels and therefore is considered as color conversion. (See also claim 3 of this instance application where  $Cor_{NN}$ , which deals with noise, is part of the color conversion) Note further that the characteristic of the filtering is adjusted for each area and therefore is based on the pixel values of the area (since the separation is based on image data, i.e., pixel values, see Col. 15, lines 20-22). Finally, Fig. 3, the block labeled "Filter Control Unit" shows that the filters (i.e., the color conversion functions) are represented as matrices]

### ***Allowable Subject***

14. Claim 1 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action; with the U.S.C. 112 rejection thus overcome, claims 2, 4, 5 and 8 will also be allowable.

15. Additionally, if claim 1 is rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, then claims 3, 6 and 7 would also be allowable if rewritten or amended to overcome their respective rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

16. Claims 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 11-14, 16, 18 and 19, being dependent from claim 10, are similarly objected to but would be allowable should claim 10 be so rewritten.

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17. The following is a statement of reasons for the indication of allowable subject matter:

A. Regarding claims 1 and 10, closest art of record, alone or in combination, does not disclose, teach or suggest the color transform matrix as recited in the claims.

***Conclusion and Contact Information***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Tan et al. (US 6,600,833) – discloses computing color correction image based on the characteristics of the image to be corrected
- Ryoo et al. (US 5,552,904) – discloses dividing color space into regions, obtaining color correction coefficients for each region then for each input pixel, applying the appropriate coefficients for color correction
- Inoue (US 5,987,167) – discloses selecting color correction matrix based on the color characteristic data of the input image

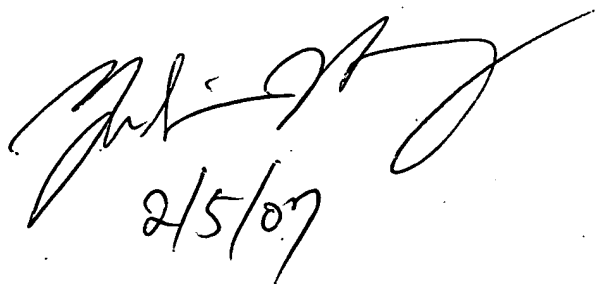
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew C. Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



2/5/07

Yubin Hung  
Patent Examiner  
Art Unit 2624  
February 05, 2007